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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/320,950	05/27/1999	JOHN N. GLOVER	2797.004	5662

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EXAMINER
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SORKIN, DAVID L

ART UNIT	PAPER NUMBER
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1723

DATE MAILED: 12/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/320,950

Applicant(s)

GLOVER, JOHN N.

Examiner

David L. Sorkin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 59,61-67 and 69-85 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 59,61-67 and 69-85 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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### **DETAILED ACTION**

1. The reply brief filed on 16 October 2006 is acknowledged.
2. PROSECUTION IS HEREBY REOPENED.

To avoid abandonment of the application, appellant must exercise one of the following two options:

- (1) file a reply under 37 CFR 1.111 to this non-final Office Action; or,
- (2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 82-85 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. These claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. Recitation in claims 82-85 that "the outer periphery has sharp edges" is considered to be new matter. No discussion of the issue of edge sharpness is found in the originally filed disclosure.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 59, 61-67 and 69-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kramer (US 4,615,796) in view of "CE Refresher: Catalyst Engineering, Part 2" by John Fulton ("Fulton" herein). Regarding claims 59 and 78, Kramer ('796) discloses a method of fluid distribution in a chemical reactor comprising the steps of providing a layer of a plurality of ceramic filter units (see col. 3, lines 34-40; Figs. 1 and 2); contacting an organic based stream with the layer of the plurality of ceramic filter units and passing the organic-based stream through the layer prior to the organic based feed stream contacting a catalyst be in the chemical reactor (see col. 2, lines 20-25; Figs. 1 and 2). Kramer ('796) fails to disclose the units having 3 or more passages surrounding a central passage, through which fluid flows (although annular units, including ones with passages are disclosed in Table 1). Fulton teaches cylindrical units having a central opening and four circular/elliptical openings between the central opening and the periphery (see Fig. 1, third column, fifth row). Note: it is considered that the broadest reasonable definition of ellipse includes circles; just as squares are a special type of rectangle, circles are a special type of ellipse. It is considered that it would have been obvious to one of ordinary skill in the art to have shaped the units of Kramer according to the teachings of Fulton, because Kramer explains that alternative

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unit shapes may be used in the disclosed processes (see Table 2 and col. 4, lines 1-4).

Furthermore, Fulton teaches the above-mentioned shape as an alternative to other shapes including spheres (see page 97) and explains that passages in the units can significantly reduce the amount of material needed, while minimizing loss of strength (see pages 97 and 98, Fig. 3). See also the admitted prior art of page 3, lines 7-18 of the instant specification. Regarding claim 61, Kramer ('796) further discloses removing contaminants from a contaminated stream; and providing the contaminated stream to a catalyst bed for further processing in the chemical reactor (see col. 1, lines 52-60; col. 3, lines 4-22; Figs. 1 and 2). Regarding claims 62 and 63, because "packing factor" can be set to any value for a given shape unit merely by varying the size of the unit, and Kramer ('796) explains that unit size should be selected according to an expected particle size to be filtered out, it is considered that it would have been obvious to one of ordinary skill in the art to have optimized the packing factor to suit a particular expected contaminate particle size. Further regarding claim 63, Kramer ('796) discloses packing the ceramic filter units in graduated layers into the chemical reactor with each layer having a different packing factor (see examples 1-3). Regarding claim 64, Fulton further teaches units may have a flute outer periphery (see Fig. 1). Regarding claim 65, Fulton further teaches that units may have a plurality of recessed notches extending inwardly from the outer periphery toward the medial portion of the units (see Fig. 1). Regarding claim 66, in the units taught by Fulton the four openings substantially surround the central opening between the central opening and the outer periphery to thereby define a ring around the central opening (see Fig. 1). Regarding claim 67,

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Kramer ('796) discloses a method of fluid distribution in a chemical reactor comprising the steps of providing a layer of a plurality of ceramic filter units (see col. 3, lines 34-40; Figs. 1 and 2); contacting an organic based stream with the layer of the plurality of ceramic filter units and passing the organic-based stream through the layer prior to the organic based feed stream contacting a catalyst bed in the chemical reactor (see col. 2, lines 20-25; Figs. 1 and 2). Kramer ('796) fails to disclose the polygonal units having 3 or more passages surrounding a central passage, through which fluid flows. Fulton teaches units having a central opening and four circular/elliptical openings between the central opening and the periphery (see Fig. 1, third column, fifth row). Note: it is considered that the broadest reasonable definition of ellipse includes circles; just as squares are a special type of rectangle, circles are a special type of ellipse. Polygonal units are also taught (see Fig. 1). It is considered that it would have been obvious to one of ordinary skill in the art to have shaped the units of Kramer according to the teachings of Fulton, because Kramer ('796) explains that alternative unit shapes may be used in the disclosed processes (see Table 2 and col. 4, lines 1-4). Furthermore, Fulton teaches the above-mentioned shapes as an alternative to other shapes including spheres (see page 97) and explains that passages in the units can significantly reduce the amount of material needed, while minimizing loss of strength (see pages 97 and 98, Fig. 3). Fulton also notes in the caption of Fig. 1, that the shapes "represent only a few of the almost limitless variety possible". Regarding claim 69, Kramer ('796) further discloses removing contaminants from a contaminated stream; and providing the contaminated stream to a catalyst bed for further processing in the chemical reactor

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(see col. 1, lines 52-60; col. 3, lines 4-22; Figs. 1 and 2). Regarding claims 70 and 76, Fulton further teaches that units may have a plurality of recessed notches extending inwardly from the outer periphery toward the medial portion of the units (see Fig. 1). Regarding claim 71-75, square and rectangular shapes are disclosed in Fig. 1 of Fulton. It is explained that the size of the units should be selected based upon various economic trade-offs (see pages 98-99). Kramer provides examples of unit sizes being 0.5 inches and other sizes within the claimed ranges (see example 1-3). Also see applicant's admission on page 3, lines 7-10 regarding prior art thickness of "3/8 inch" and "approximately 1/8 inch to 1 1/4 inches in diameter". Regarding claim 77, in the units taught by Fulton the four openings substantially surround the central opening between the central opening and the outer periphery to thereby define a ring around the central opening (see Fig. 1). Regarding claims 79-81, the central opening taught by Fulton is circular (see Fig. 1, third column, fifth row). Regarding claims 82-85, Fulton further teaches units with sharp edges as an alternative to units without sharp edges (see Fig. 1).

7. Claims 59, 61-67 and 69-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kramer ('796) in view of Fulton as applied to claims 59, 61-67 and 69-85 above, and further in view of Hung et al. (DE 3,539,195). While it is considered that the broadest reasonable definition of ellipse includes circles, as discussed above, to the extent that someone would argue that circles are excluded from the set of ellipses, Hung et al. (DE 3,539,195) is relied upon as establishing the art recognized equivalence of circular and elliptical openings in ceramic units. As explained in pages

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8-10, especially lines 6 and 7 of page 9, of the English translation of Hung ('195), elliptical openings are recognized as an alternative to circular openings. It is considered that it would have been obvious to one of ordinary skill in the art to have substituted elliptical holes for the circular holes discussed above, because circular holes and elliptical holes are recognized in the art as alternative for the same purpose according to Hung ('195) pages 8-10, especially lines 6 and 7 of page 9.

### ***Response to Arguments***

8. As applicant points out in the reply brief, the originally filed specification (specifically original claim 5) expressly states that "elliptical" shape includes circles. Applicant also refers to an office action on an application of which the instant application is a divisional CPA. It is noted that any examiner-statement in that application which applicant expressly abandoned in favor of the instant divisional application, is not a binding precedent in this application. The PTO is required to use the broadest reasonable meaning of terms consistent with the specification. The broadest reasonable meaning of "elliptical" includes circular shapes. Just as squares are a special case of rectangles, circles are a special case of ellipses.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L. Sorkin whose telephone number is 571-272-1148. The examiner can normally be reached on 9:00 -5:30 Mon.-Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



David L. Sorkin  
Primary Examiner  
Art Unit 1723

DLS